UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
Whitman National Forest

D-6

Final Report of Insect Control
For Fall of 1910, Ending November 19, 1910

SS
Whitman, Studies
Insect Infestation

Camp Fidelity

Following the date of last weekly report the weather cleared up and by the middle of the week had become sufficiently dry to burn the piles of logs cut the previous week.

Increasing the force to the capacity of the camp, which made four crews; two crews were set to burning the log piles, and the other crews were instructed to burn their piles as fast as completed.

However, most of the piles did not burn nearly as readily as before and it was almost impossible to burn the brush at all. Piles that were composed only of logs burned much more readily, but still were hard to start. Then too a fall of four inches of snow and some rain came on to make matters worse, but, with a knowledge of the conditions of spring burning, the short uncertain period in which it may be done, piled logs wet and soggy long after the surrounding debris is quite dry, the rush of spring work, etc., it was deemed quite advisable to dispose of the insects in trees already cut, even at considerable expense, and the work was

pushed so that now practically all of the timber cut is burned. In a few cases it was only possible to char the logs sufficiently to kill the insects and most all of the brush piles were left as being too expensive and containing no insects, no great harm might result if they should fail to be burned prior to July 1. However, they may be burned in the spring long before it would be at all possible to burn log piles.

By the end of the week the weather had become so disagreeable that the majority of the men did not wish to work longer and as the expense of maintaining a small crew was proportionately greater it was decided to discontinue operations.

While it would be exceedingly difficult to burn in the spring log piles cut this fall, experience has proven that they can be readily burned as fast as cut and piled. Another fact that has developed from experience is that log piles piled compactly with a small amount of dry material in the bottom and absolutely no brush burn very good, while it is often very difficult to burn them when brush is mixed in or even piled over the top of log piles. Also the larger and more compact the piles the less dry material needed. Where logs and brush must be burned together it is much better to pile the logs compactly and after they are well burned down, or at least well started, pile on the green brush. While a crew is working in the vicinity this does not make much expense and does a much better job.

Where the infestation is quite serious a large camp can be worked advantageously, but in so working a distance of two miles from camp can seldom be exceeded; and if the outlying infestation is inaccessible or it is a steep climb from camp to the work a shorter distance should limit the operations from the camp, since walking a large crew any great distance becomes quite expensive.

The plan found most successful in this locality is for the officer in charge of the camp to cruise and mark the infested timber direct or take the crews to the marked timber; the crews, composed of three men, cut, pile and burn the infested timber marked. Usually the foreman and one man fall the trees. While they are doing this the third man, or trimmer, barks the stumps of trees to be cut below where they will be cut, and also trims up the tops of fallen trees. After the fallers have fallen several trees the foreman ascertains the infested length and takes the measurements, recording species, D.B.H., infested length and total length (height) and any notations in a book; also recording on the stump the D.B.H. and infested length. (This latter was done at the request of the Bureau of Entomology and was for the information of its examiner, or agent.) While he is doing this the crew is cutting up the trees into logs. The logs and brush are then fired and the crew moves on to the next trees designated by the officer in charge. Each crew looks after the burning of its own piles, which only requires one

man for a short time after the piles are well burned down, to "chunk up" and refire any piles that may have missed fire. At the close of the day each foreman reports number of trees and species and any other important fact to the officer in charge, which forms a basis for weekly reports.

Wherever the infestation is enough to justify a large camp one cruiser can keep four crews busy and also maintain a supervision of the work. By reason of it being necessary to give some attention to other Service business an extra officer was needed a part of the time to do marking of timber and supervision of the work. However, this becomes somewhat complicated, especially when either he or the officer in charge is not thoroughly familiar with the ground covered or there are no striking physical features by which to describe the various locations. This also becomes very apparent in trying to direct crews to infested timber without going in person, and often much valuable time may be lost in trying to follow such directions. The cruiser makes a careful examination of each tree and in doing so uses whatever method seems to meet the requirements of the locality. On this watershed, where the slopes were very steep and very much cut up with little draws and gulches, it was found most practical to take the area between two of these gulches and commencing at either the top or bottom traverse the area from one gulch to the other on a level; then, moving up or down the slope, go back to the other, and so on. The trees are blazed with a blaze not less than six inches long and two to five

inches wide, and stamped with a marking hatchet in the blaze. The blazes were always placed on the down-hill side, and if the timber was dense or the trees isolated they were often blazed quartering to the slope. Where this plan is carried out no map of infested trees, and very few notes, are required, since they are cut almost as fast as marked and a good cruiser can retain a knowledge of their location until he has directed a crew to them.

The Bureau's agent, Mr. Edmiston, remained with the camp throughout the work and assisted in marking timber and instructing the new men, as they came, in control work. He also maintained a constant supervision of the work, and approved the methods employed. The Bureau's expert, Mr. H. E. Burke, visited Camp Fidelity this week and went over the work done. He expressed an approval of the work and the plans as carried out.

Wherever the infestation is scattering a plan for working small camps has been evolved, which it is believed will be much more economical and effective than large camps and will be set forth in the recommendation.

In all of this work the beetle that has been doing the damage is the mountain pine beetle (Dendroctonus Monticolae). In a few of the yellow pine a small amount of western pine beetle (D. Brevicomis) is found, but in no case sufficient to kill the tree and always occupying the unoccupied spaces between the

workings of the monticolae.

In most cases the work of the brevicomis is confined entirely to the unoccupied spaces. A number of striking instances of this were found showing conclusively that brevicomis had entered after monticolae.

The amount of infested length that is totally infested is found to be not less than 80% and the remainder is approximately 60% infested.

The monticolae as a rule is very healthy and is in all stages of attack and development up to the pupal stage. The great majority of the work shows long egg galleries (8" to 17") and larvae large and well developed and seemingly quite healthy. Many of the larvae have almost reached full development and are ready to pupate although no pupae were found. A few trees were found which had recently been attacked and the galleries only a few inches long. Often the galleries in the tops of the trees were short and contained eggs and recently hatched larvae. The beetles seem to be quite free of disease; what little was found would have no effect on their reproduction.

The beneficial insects, or those that prey upon the dendroctonus, were found only in minor quantities, so that no appreciable benefit is noticed. In the yellow pine, associated with monticolae, besides brevicomis were found a few dendroctonus valens; also a few flat and round-headed borers; all of these later usually in the stump.

In trees where the monticolae were well advanced, several species of tomicus were found, especially in the tops of the lodgepole above the workings of the monticolae. In the yellow pine they are associated with the monticolae. But always the character of the work shows that they had gone in after the tree had been killed.

In nearly all of the work this fall the infested trees were easily picked out by means of the fading color of the tops; especially with the yellow pine this fading was very marked. The only exceptions were trees that had recently been attacked.

In locating the infested trees it was often quite difficult to pick them out by means of the pitch tubes, since where a tree was vigorously attacked they were often entirely lacking, the only external evidences on the bark being scattered minute quantities of sawdust or borings. Trees that were recently attacked usually had pitch tubes much better developed. As a rule the pitch tubes are not as prominent this year as they were last year. It is thought that this may be accounted for by the extremely dry season at the period when the main flight of beetles was made.

Almost without exception the bluing fungi follow immediately after the attack of the monticolae and long before the tops show any indication of turning the bluing has permeated all the sap wood and is striking into the heart wood. On the other hand the portion attacked by brevicomis above is free from bluing even after the trees are dead, which would

indicate that monticolae might carry the spores of the fungi. These fungi seem to"dry" out the timber so that it burns much more readily when in the piles.

The area of Wind Creek watershed is approximately 2,300 acres, of which 1,300 acres lie on the right-hand side. Of this side infestation was found on about 300 acres. This was all cleaned up and Mr. Edmiston, for the Bureau of Entomology, is of the opinion that the right-hand side of the creek is now free of infestation. To this should be added approximately 40 acres on the left-hand side, making a total of 340 acres treated and 1,340 acres free of infestation. Three more working units were nearing completion, but are not considered in these figures, as they will needs require some work in the spring when the work is resumed. It is believed that there is about one week's work at this camp for four crews.

It is from this watershed that the City of Sumpter obtains a portion of its water supply. When camp was broken the grounds were thoroughly cleaned up and all refuse either burned or buried.

Recommendations.

When the work on this area is resumed in the spring a careful inspection should be made of these cut-over areas and the brush piles and any unburned log piles should be burned.

In all cases the brush and logs should be burnt as fast as cut, not only because the uncertain weather conditions

interfere very much with burning piles that have lain for some time, but it is also much less expensive for each crew to burn each pile as cut than to do it later. There is then no danger of overlooking any piles.

In that portion of the Forest it is proposed to work next spring in order to connect up with the work being done by private owners, it is believed that the infestation is much more scattered and in small bodies, except one or two localities. The country is cut up by deep creeks and canyons and forms a regular succession of ridges and creeks and it is quite impracticable to work one creek or ridge from another. Therefore it seems that a large camp will be impracticable. To overcome this the following plan is submitted for consideration:

One officer in charge of whole operations.

For each division, of which there may be one or more:

One cruiser,
One camptender
Three crews composed of:

One foreman
Two woodsmen

Each crew to have a camp equipment to accommodate four men, the crews to furnish their own beds and board. The cruiser should be in direct charge of these three crews; he will mark the timber and inspect the work. The tree camps should seldom be so far apart but what he could give each the attention needed. Camptender will move camps at direction of crew

foreman and pack in supplies as required by the crews.

Cruiser and camptender may arrange to board with the crews.

Approved:

Henry Ireland
Supervisor

R. E. Smith,
Forest Ranger

SUMMARY OF CONTROL WORK

Fall of 1910

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Dendroctonus Monticolae

Species	Number	D. B. H. Total	D. B. H. Av.	Infested Length Total	Infested Length Average	Height Total	Height Av.	Infested %
Lodgepole pine	1056	8282"	7.93"	35827'	33.92'	63195'	59.84'	56.7%
Yellow pine - -	61	1005"	16.5"	3729'	61.1 '	4735'	77.6 '	78.7%
White bark pine	3	27"	9.0"	75'	25.0 '	100'	33.3 '	75.0%
--Total- - - - -	1120			39631'				

The maximum D.B.H. for the different species was as follows:

Species	D. B. H. Max.	D. B. H. Min.	Infested Length Max.	Infested Length Min.	Height Max.	Height Min.
Lodgepole pine	26"	5"	83'	6'	100'	30'
Yellow pine	35"	4"	106'	20'	115'	30'
White bark pine	10"	8"	28'	22'	40'	25'

Of the infested length approximately 80% is totally infested.

Costs

Labor - - - - - -- -	$527.99		
Tools - - - - - -	35.25		
Hauling - - - - - - -	21.00	Total trees cut - - -- -	1120
Feed - - - - - - - -	8.11	Total infested length -	39631 ft.
Camp equipment - - -	54.10	Total cost - - - - - -	$781.05
*Board - - - - - -	222.87	Cost per tree - - - -	.70
	$869.32	Cost per infested foot	.02

Residual Values

Tools - - - - - - -$	35.25	
Camp equipment -2%	53.02	
	88.27	
Net cost - - - - - - -	781.05	

*Board includes services of cook.

Stumps were cut as low as possible and will average less than eight inches high and all stumps that were infested were peeled.